

**CLAIMS**

1. Anionic hydrogel matrix obtained by chemical reticulation by means of irradiation of polymers suitably derivatised with photoreticulable groups, in the presence of acid comonomers.

2. Matrix according to claim 1, in which the polymers are selected from the group consisting of polyaminoacid polymers, polyaspartamide polymers, acrylic or methacrylic acid polymers, alkylvinyl polymers, hydroxyalkyl cellulose, carboxyalkyl cellulose, polysaccharides, dextrans, pectins, amides and derivatives, synthetic or natural rubbers or alginic acid;

3. Matrix according to claim 2, in which the polymer is  $\alpha,\beta$  poly(N-2-hydroxyethyl)D,L aspartamide (PHEA).

4. Matrix according to claims 1-3, in which the photoreticulable groups are derived from the insertion of glycidyl methacrylate (GMA) and methacrylic anhydride (MA) in the side chain of PHEA.

5. Matrix according to claim 1, in which the acid comonomer is selected from methacrylic acid or acrylic acid.

6. Matrix according to claim 1, in which the irradiation agents are selected from the group consisting of gamma rays, beta rays and ultraviolet radiation.

7. Matrix according to claim 1, in the form of nanoparticles, microparticles, gels, films, cylinders or sponges, the preferred form being microparticles.

8. Pharmaceutical composition consisting of a matrix according to claims 1-7, and one or more active ingredients

9. Composition according to claim 8, containing additionally one or more pharmaceutically acceptable excipients.

5 10 Composition according to claim 9, in which the excipients are selected from the group consisting of bioadhesives, chitosans, polyacrylamides, natural or synthetic rubbers and acrylic acid polymers.

10 11. Composition according to claim 8, in which said active ingredients are selected from the group consisting of:

- analgesic agents, such as acetaminophen, phenacetin and sodium salicylate;
- antitussive agents, such as dextromethorphan and codeine phosphate;
- 15 - bronchodilators, such as albuterol and procaterol;
- antipsychotics, such as haloperidol and chlorpromazine;
- antihypertensive agents and coronary dilators, such as mono- and dinitrate isosorbide and captopril;
- selective  $\beta_2$  antagonists, such as salbutamol, terbutaline, 20 ephedrine, and orciprenaline sulphate;
- calcium antagonists, such as nifedipine, nicardipine, diltiazem and verapamil;
- antiparkinson drugs, such as pergolide, carbidopa and levodopa;
- hormones;

- non-steroidal and steroidal anti-inflammatory drugs, such as ketoprofene, ibuprofene, diclofenac, diflunisal, piroxicam, naproxene, ketorolac, nimesulide, budesonide, tiaprofenic acid, mesalazine (5-aminosalicylic acid), cortisone, hydrocortisone, betamethasone and prednisone;
- antihistamines, such as terfenadine and loratadine;
- antidiarrhoeal and intestinal anti-inflammatory agents, such as loperamide, 5-aminosalicylic acid, olsalazine, sulfasalazine and budenoside;
- spasmolytics, such as octylonium bromide;
- anxiolytics, such as chlordiazepoxides, oxazepam, medazepam, alprazolam, donazepam and lorazepam;
- oral antidiabetic agents, such as glipizide, methformin, phenphormin, gliclazide and glibenclamide;
- cathartics, such as bisacodil and sodium picosulphate;
- antiepileptic agents, such as valproate, carbamazepine, phenytoin and gabapentin;
- anticancer agents;
- disinfectants of the oral cavity or antimicrobials, such as benzalkonium chloride, cetylpyridinium chloride or tibezoneium iodide, and a number of aminoderivatives such as benzidamine and chlorhexidine as well as their salts and derivatives;
- sodium fluoride;
- cardioactive agents;
- antihistamines;

- L-carnitine and/or one or more alkanoyl L-carnitines, or one of their pharmaceutically acceptable salts;

12. Composition according to claim 11, in which the alkanoyl, straight or branched, has 2-6 carbon atoms, and is selected from the group consisting of acetyl, propionyl, butyryl, valeryl or isovaleryl L-carnitine.

13. Composition according to claim 11, in which said pharmaceutically acceptable salt of L-carnitine or of the alkanoyl L-carnitines is selected from the group consisting of chloride, bromide, orotate, aspartate, acid aspartate, acid citrate, magnesium citrate, phosphate, acid phosphate, fumarate and acid fumarate, magnesium fumarate, lactate, maleate and acid maleate, oxalate, acid oxalate, pamoate, acid pamoate, sulphate, acid sulphate, glucose phosphate, tartrate and acid tartrate, glycerophosphate, mucate, magnesium tartrate, 2-amino-ethane sulphonate, magnesium 2-amino-ethane sulphonate, methane sulphonate, choline tartrate, trichloroacetate, and trifluoroacetate.

14. Composition according to claims 8-13 for oral use.

15. Use of the composition according to claim 8 in the medical and veterinary fields.

16. Use of a composition according to any of claims 8-14, for the preparation of a medicine for the treatment of cardiovascular diseases, tumours, central and peripheral nervous system diseases, or intestinal diseases.

17. Use according to claim 16, in which the intestinal disease is chronic ulcerative colitis or Crohn's disease.

18. Use according to claim 17, in which the drug useful for the treatment of chronic intestinal disease is propionyl L-carnitine.

5 19. Use according to claim 15, in which said composition can be administered by the parenteral or vaginal routes.